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Efficient context-based entropy coding for lossy wavelet image compression**Chrysafis, C., Ortega, A.**

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Abstract

We present an adaptive image coding algorithm based on novel backward-adaptive quantization/classification technique using uniform scalar quantizer to quantize the image subbands. Our algorithm puts the coefficient into one of several classes of values of neighboring previously quantized coefficients. These previously quantized coefficients form contexts which are used to code the subband data. To each context type corresponds a different probability model and thus each subband coefficient is arithmetic coded using the appropriate model depending on that coefficient's neighborhood. We show how the context is driven by rate-distortion criteria, by choosing the contexts in a way that the total distortion for a given bit rate is minimized. Probability models for each context are initialized/updated in a very efficient way so that practically no overhead information is required by the decoder. Our results are comparable or in some cases better than the recent state of the art, with our algorithm being faster than the published algorithms of comparable performance.

Index Terms

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